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Building & Highway Material Testing Laboratory
An ISO 9001:2008 Certified Company
NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

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BSCIC
ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BBU/W.No.01/WMM/Gradation/2017-18 01.12.2017

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B.B. Umesh,** #345/1, Anjaneya temple Bettahalasoor, Bangalore.
* Name of Work	:	Improvements to roads at Govt Hospital road premises in Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386 (part-1)1963 (RA-2011)
Date of Testing	:	01.12.2017

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-13
53	0	0	0	100	100
45	160	160	3.2	96.8	95-100
22.4	1535	1695	33.90	66.10	60-80
11.2	1020	2715	54.30	45.70	40-60
4.75	560	3275	65.50	34.50	25-40
2.36	490	3765	75.30	24.70	15-30
0.600	475	4240	84.80	15.20	8-22
0.075	630	4870	97.40	2.60	0-8

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/BBU/W.No.01/WMM/AIV/2017-18 01.12.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B.B. Umesh,** #345/1, Anjaneya temple Bettahalasoor, Bangalore.
* Name of Work	:	Improvements to roads at Govt Hospital road premises in Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS : 2386(Part -4)-1963 (RA-2011)
Date of Testing	:	01.12.2017

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	305	305	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	21.19	21.59	21.39

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/BBU/W.No.01/WMM/Shape.T/2017-18 01.12.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B.B. Umesh,** #345/1, Anjaneya temple Bettahalasoor, Bangalore.
* Name of Work	:	Improvements to roads at Govt Hospital road premises in Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386(Part 1) 1963 (RA 2011)
Date of Testing	:	01.12.2017

Sl.No.	Description	Result
1	Flakiness Index	12.15%
2	Elongation Index	13.68%
3	Combined Flakiness & Elongation Index	25.83%

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/BBU/W.No.01/BC/AIV/2017-18 11.12.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B.B. Umesh,** #345/1, Anjaneya temple Bettahalasoor, Bangalore.
* Name of Work	:	Improvements to roads at Govt Hospital road premises in Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Technical Reference	:	IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	:	11.12.2017

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	388	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	81	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	307	306	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	20.88	21.34	**21.11**

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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11.12.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B.B. Umesh,** #345/1, Anjaneya temple Bettahalasoor, Bangalore.
* Name of Work	:	Improvements to roads at Govt Hospital road premises in Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	11.12.2017

Sl.No.	Description	Result
1	Flakiness Index	12.15%
2	Elongation Index	13.30%
3	Combined Flakiness & Elongation Index	25.45%

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/BBU/W.No.01/BC/Stripping/2017-18 11.12.2017

TEST REPORT ON STRIPPING VALUEOF ROAD AGGREGATES (STATIC IMMERSION TEST)

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B.B. Umesh,** #345/1, Anjaneya temple Bettahalasoor, Bangalore.
* Name of Work	:	Improvements to roads at Govt Hospital road premises in Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
Technical Reference	:	IS: 6241
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	11.12.2017

Type of binder : 60/70
Percentage of binder used : 5.00% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.3	3.40	96.60
2	3.4		
3	3.5		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/BBU/W.No.01/BC/Sp_Wa/2017-18 11.12.2017

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B.B. Umesh,** #345/1, Anjaneya temple Bettahalasoor, Bangalore.
* Name of Work	:	Improvements to roads at Govt Hospital road premises in Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	:	EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	11.12.2017

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2003	2004	2005	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1250	
4	Weight of saturated surface dry aggregate in air	W_3 g	2005	2007	2006	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	766	769	756	
6	Weight of oven dried aggregate	W_4 g	1995	1994	1996	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.604	2.593	2.640	2.613
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.639	2.638	2.676	2.651
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.65%	0.50%	0.55%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No: CTCE/BBMP/BBU/W.No.01/BC/Bitumen/2017-18 11.12.2017

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

As per IS2386 and IRC:SP:11-1984

* Customer	**Asst. Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
* Agency	**Mr. B.B. Umesh,** #345/1, Anjaneya temple Bettahalasoor, Bangalore.
* Name of Work	Improvements to roads at Govt Hospital road premises in Ward No.01 of Yelahanka Sub Division, BBMP, Bangalore.
* Reference	EE/YNK.D/EPMT-8/W.O/74/2017-18 Dated: 21.06.2017
* Sample ID	Roads in Govt hospital premises in Ward No.01
DATE OF TESTING	11.12.2017

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469 8	469 6
3. Weight of Asphalt and Mineral matter Extracted, g	30 2	30 4
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g (corrected)	30 2	30 4
7. Bitumen content in %	6.04	6 08
8. Average	6.06	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOBMIX
mm	Sample 1	Sample 2	Gradation
19	100 00	100 00	100
13 2	85 35	86 96	79-100
9 5	79 25	85 25	70-88
4 75	55 45	63 25	53-71
2 36	44 36	48 25	42-58
1 18	38 26	43 25	34-48
0 6	28 21	31 25	26-38
0 3	23 25	25 25	18-28
0 15	16 25	17 22	12-20
0 075	7 25	6 98	4-10

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